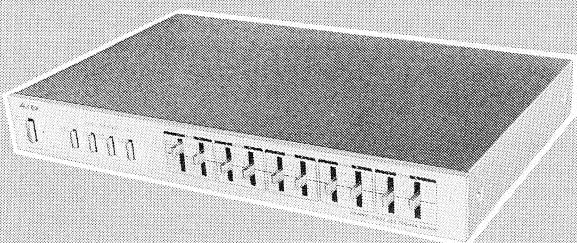


# **TOSHIBA**

GRAPHIC EQUALISER

# **EQ-500**



#### **SPECIFICATIONS**

Power:	220V ~ 50 Hz for Europe 240V ~ 50 Hz for U.K. and Australia	Gain:	0 dB (Control knob position: "0")
Power consumption:	8W	Control range:	±12 dB
Weight:	2.7 kg	Maximum output:	5V (Max.) – At flat
Dimensions:(D	420(W) x 57(H) x 266(D) mm	Input impedance:	80K ohm
Channel:	2 ch.	Output impedance:	500 ohm
Frequency band:	5 bands	SN ratio:	More than 75 dB
		Harmonic distortion:	Less than 0.06%

Specifications are subject to change without notice.

TE, TU, AY, TU-T

## 1. OPERATING CONTROLS

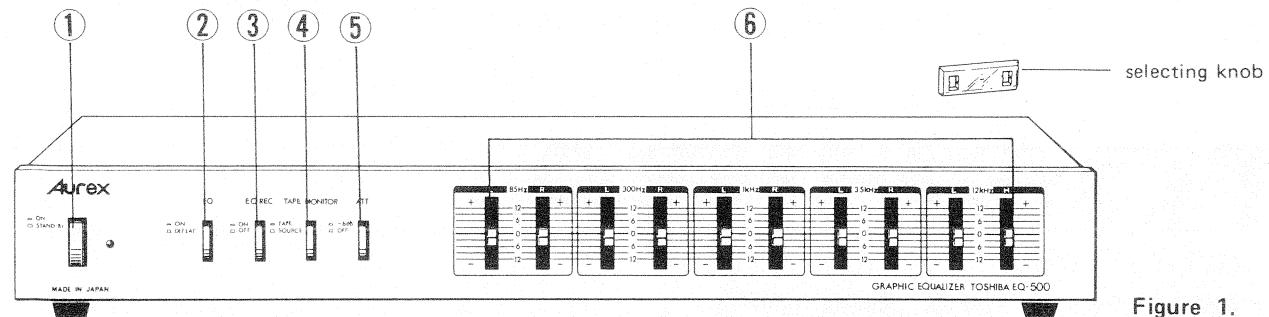


Figure 1.

## Front Panel Facilities

### ① Function switch:

Depress this switch to turn the power on. Depress once more to put the equipment into the stand-by mode.

### ② Equaliser switch [EQ]:

Depress this switch to <□ON> to activate the graphic equaliser effect.

<□DEFEAT> directs the input signal directly to the output terminal instead of through the equaliser circuit. In this position, the equaliser switch has no effect.

### ③ Equaliser recording switch [EQ REC]:

Depress this switch <□ON> for recording through the equaliser circuit. Turn it <□OFF> for recording without the use of equaliser circuit or to record through a noise reduction system.

### ④ Tape monitor switch [TAPE MONITOR]:

Set this switch to <□SOURCE> to listen to the disc or tuner. Depress the switch to <□TAPE> for listening to tape reproduction or to monitor recording using a 3-head tape deck.

### ⑤ Attenuator switch [ATT]:

The switch reduces the signal from the equaliser circuit by 6 dB. When the level is too high with the equaliser knobs on each of the bands are up, set this switch to <□-6 dB>.

This switch will not work when the equaliser switch ② is set to <□DEFEAT>.

### ⑥ Equaliser knob:

When equaliser switch ② is activated to <□ON>, the equaliser knobs cause the frequency response of each band to change continuously by ±12 dB. [L] denotes the left channel while [R], the right channel.

Connection of the selecting knob (accessory) to the frequency equaliser assures simultaneous operation of channel L and channel R knobs.

**Note:** In the stand-by position <□>, the mains power will still be supplied to the equaliser. Therefore, when not in use unplug power cord from socket.

## Connections

Noise reduction system should be connected between graphic equaliser and tape deck. When recording through the noise reduction system (e.g. Aurex/TOSHIBA adres unit, etc.), set the equaliser recording switch ③ to <□OFF> so as to release the equaliser, thereby making the noise reduction system effective.

- Check that the amplifier power switch is off before making any connections.
- Insert all plugs firmly and securely. Loose connections can result in noise and other failures.
- Disconnect the mains plug from the supply socket when not in use.

## Operation

Operate the amplifier with tape monitor switch set to "TAPE".

### 1. When operating through the equaliser circuit:

	Source	Equaliser switch	Equaliser recording switch	Tape monitor switch
Listening to	tape	□ ON	□ OFF	□ TAPE
	disc radio etc.	□ ON	□ OFF	□ SOURCE
Recording	disc radio etc.	□ ON	□ ON	□ SOURCE
Monitoring	3 head tape deck	□ ON	□ ON	□ TAPE

### 2. When not operating through the equalizer circuit:

	Source	Equaliser switch	Equaliser recording switch	Tape monitor switch
Listening to	tape	□ DEFEAT	□ OFF	□ TAPE
Listening to & recording	disc radio etc.	□ DEFEAT	□ OFF	□ SOURCE

**Note:** When operating this equipment with a noise reduction system connected, keep the equaliser recording switch ③ at <□OFF>, otherwise no benefit can be gained from the noise reduction.

## 2. DISASSEMBLY INSTRUCTIONS

### TOP COVER REMOVAL

1. Remove 10 Knobs (C). See figure 2.
2. Remove 5 screws (A) and (B).  
See figure 2 and 3.
3. Separate the top cover from the set.

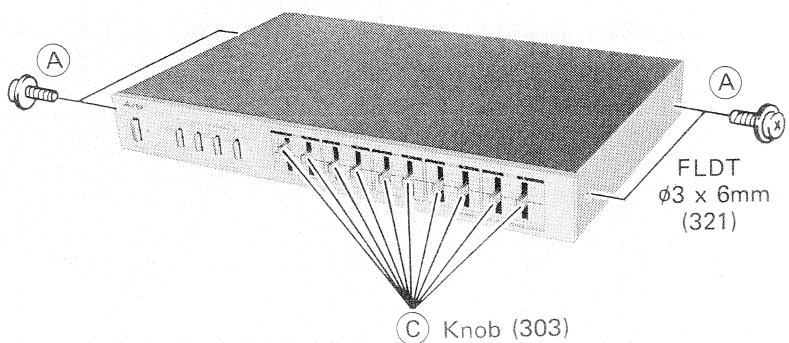


Figure 2.

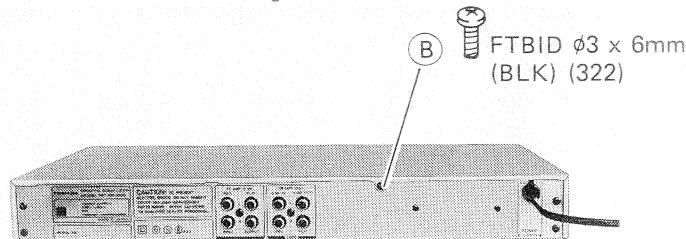


Figure 3.

### BOTTOM PLATE REMOVAL

1. Remove 8 screws (E). See figure 4.
2. Separate the bottom plate from the set.

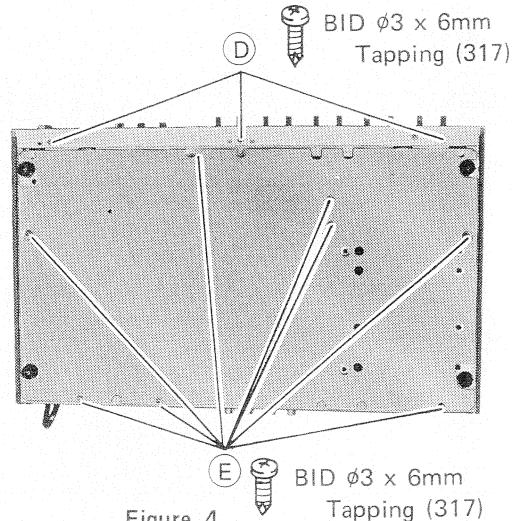


Figure 4.

### FRONT PANEL REMOVAL

1. Remove 6 screws (D) after 10 Knobs removal. See figures 4 and 5.
2. Separate the front panel from the set.

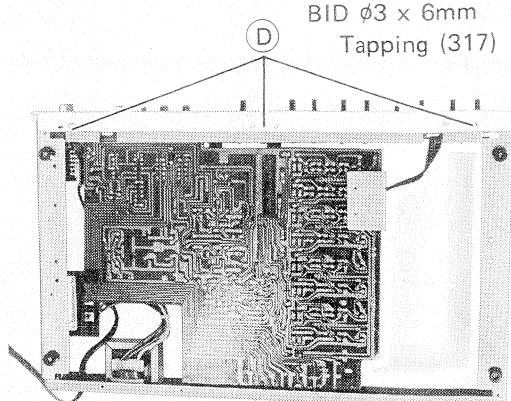
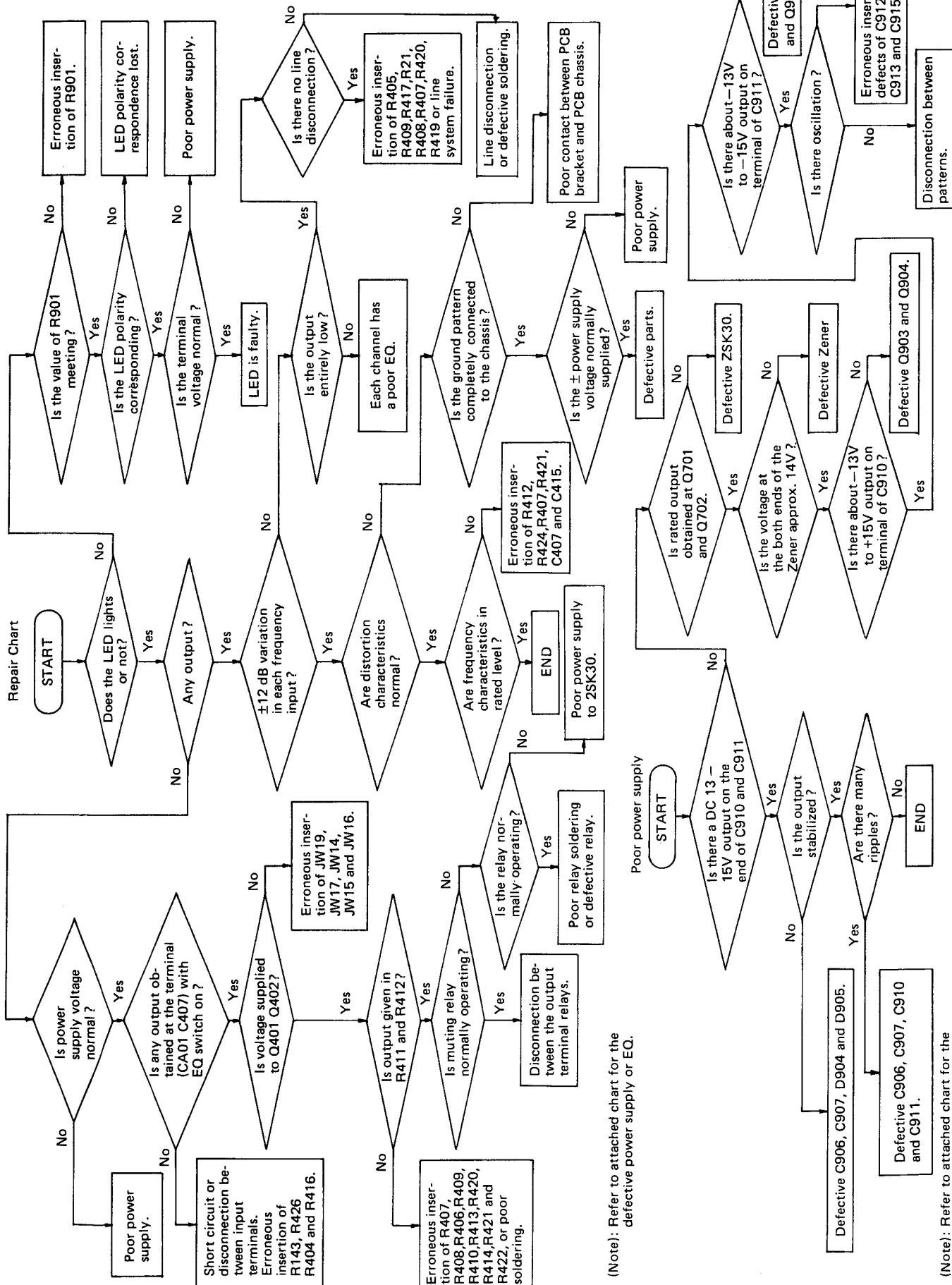


Figure 5.

## 3. TROUBLE SHOOTING



## 4. ELECTRICAL PARTS LOCATIONS

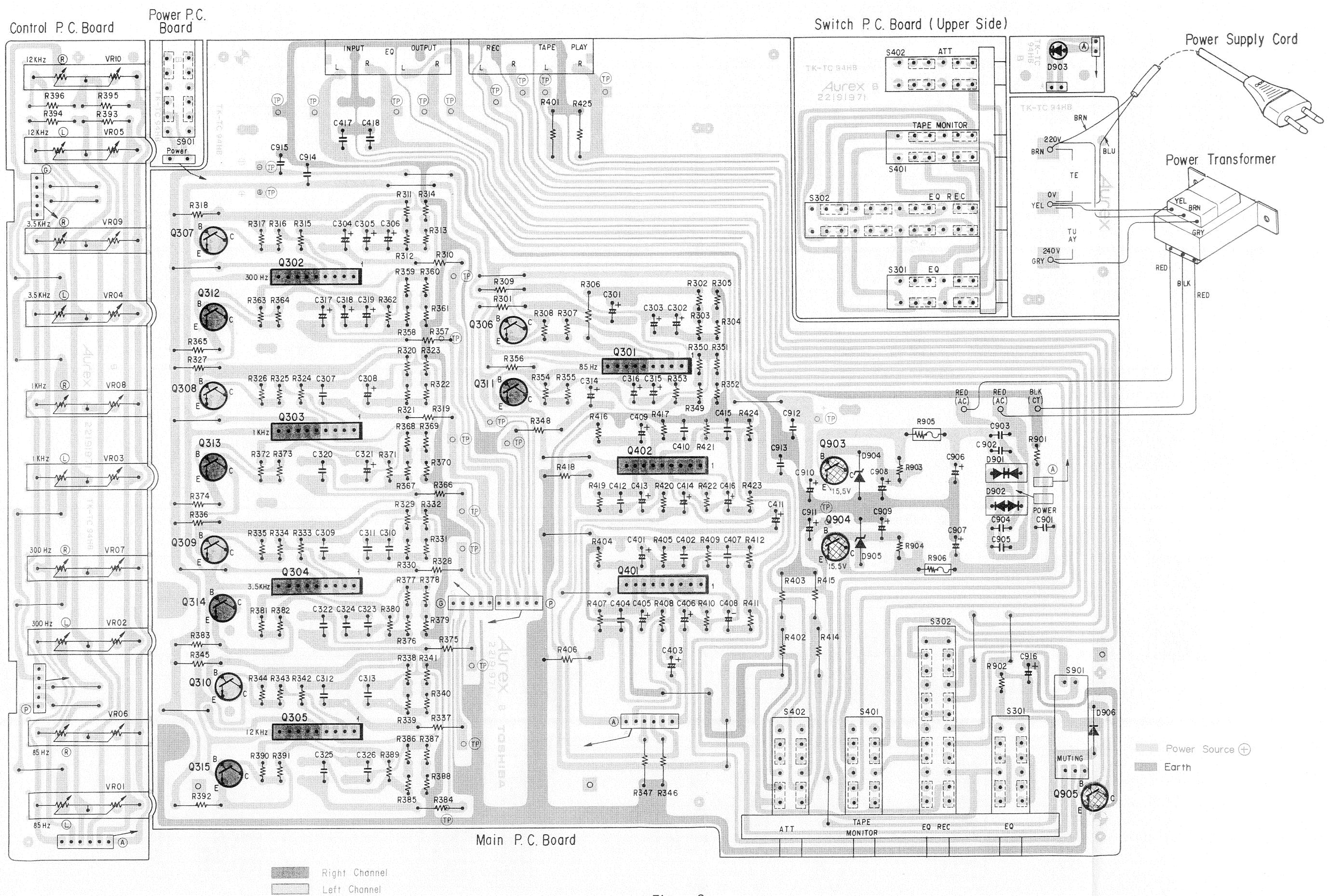
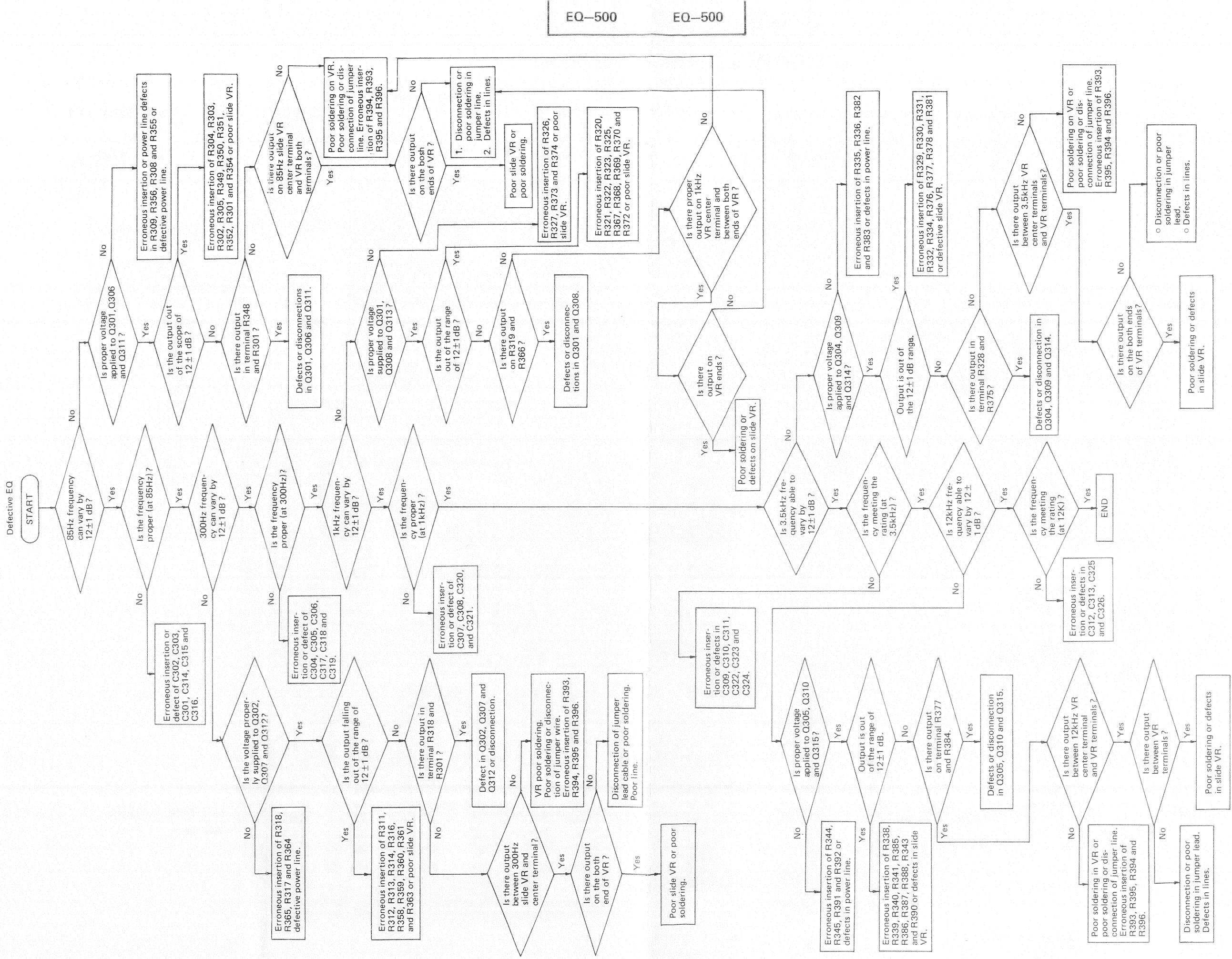


Figure 6.



## 5. SCHEMATIC DIAGRAM

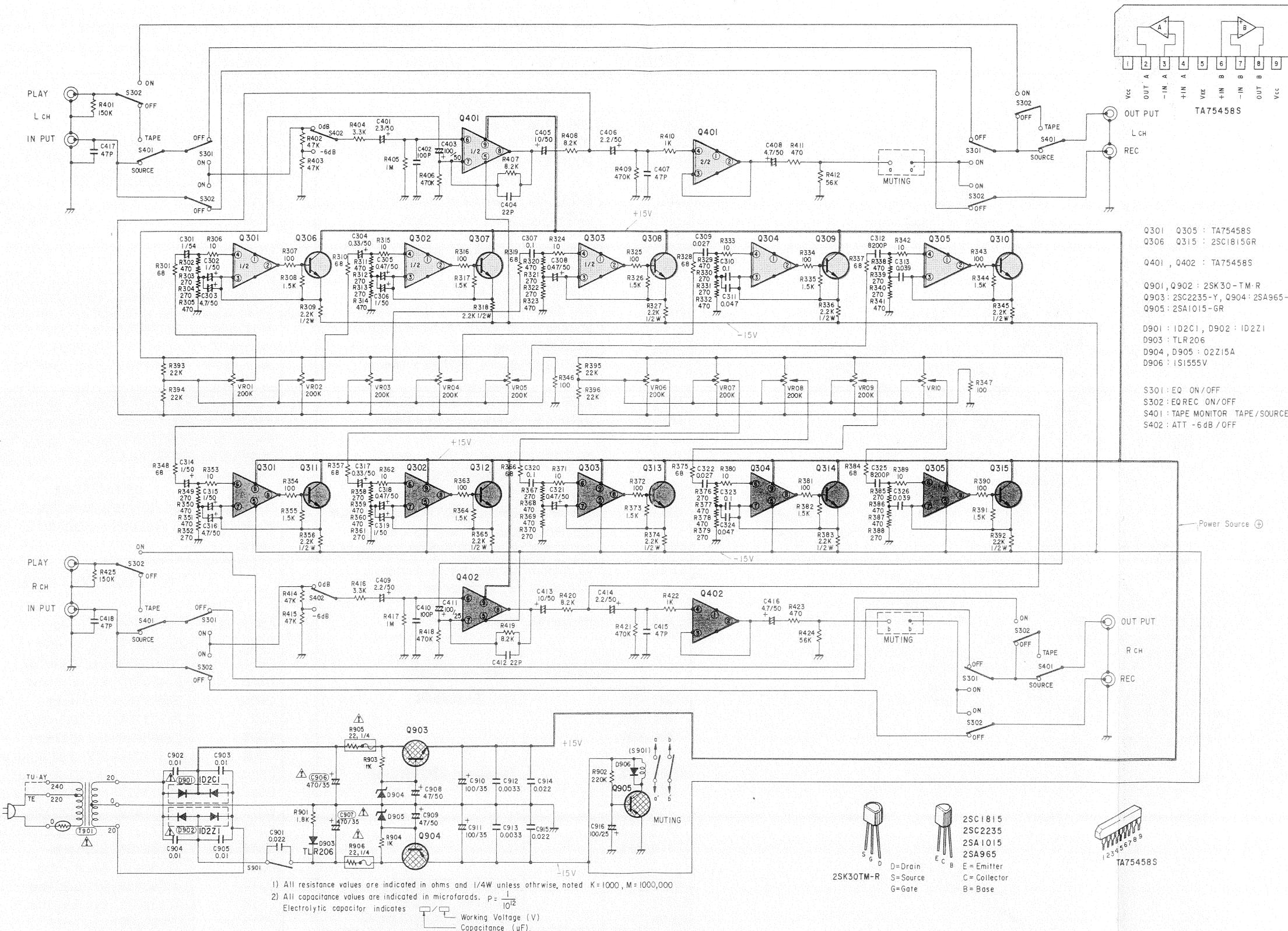


Figure 7.

## 6. CABINET EXPLODED VIEW

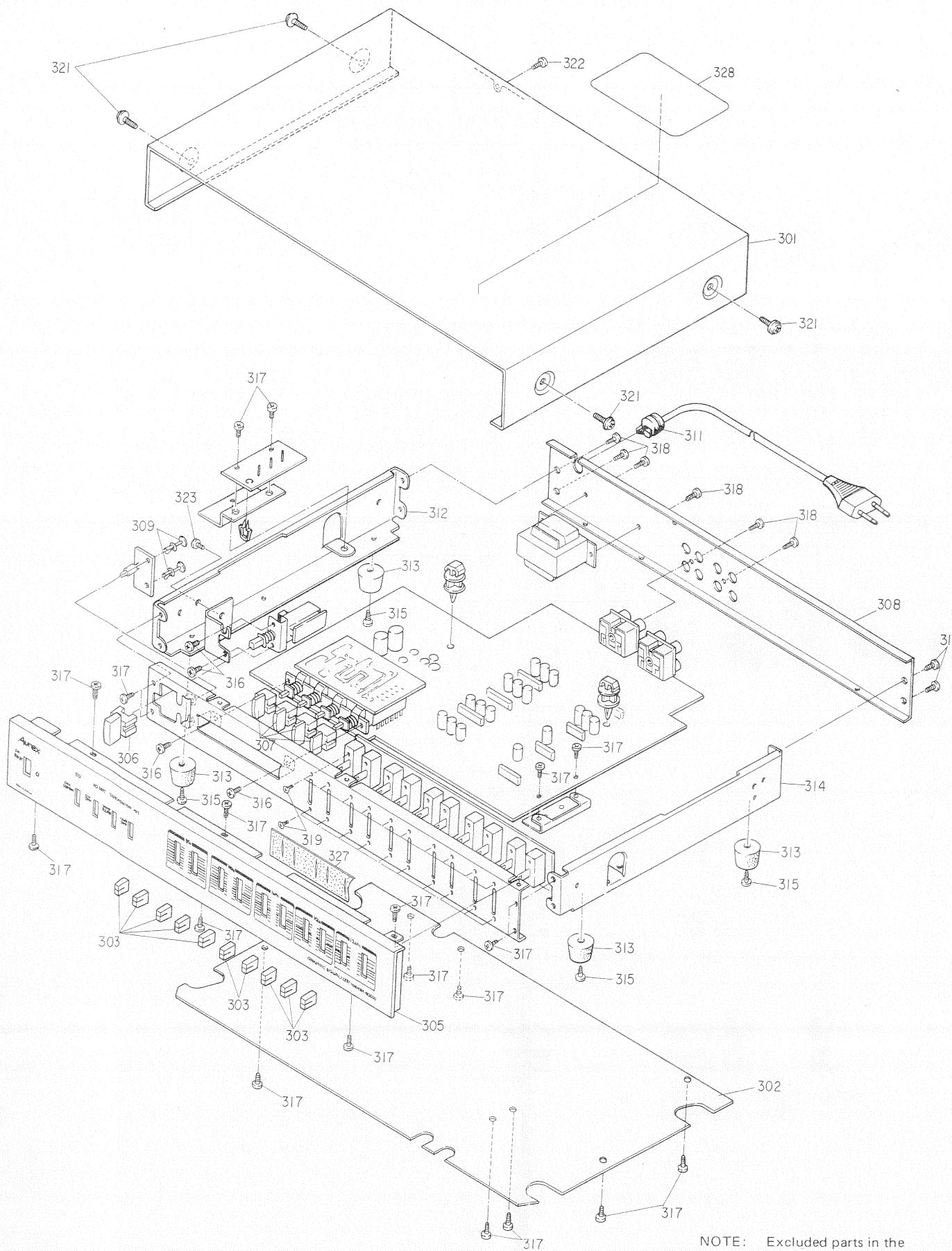


Figure 8.

NOTE: Excluded parts in the  
Parts List are not available  
as replacement parts.

## 7. PARTS LIST

**CAUTION:** The mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

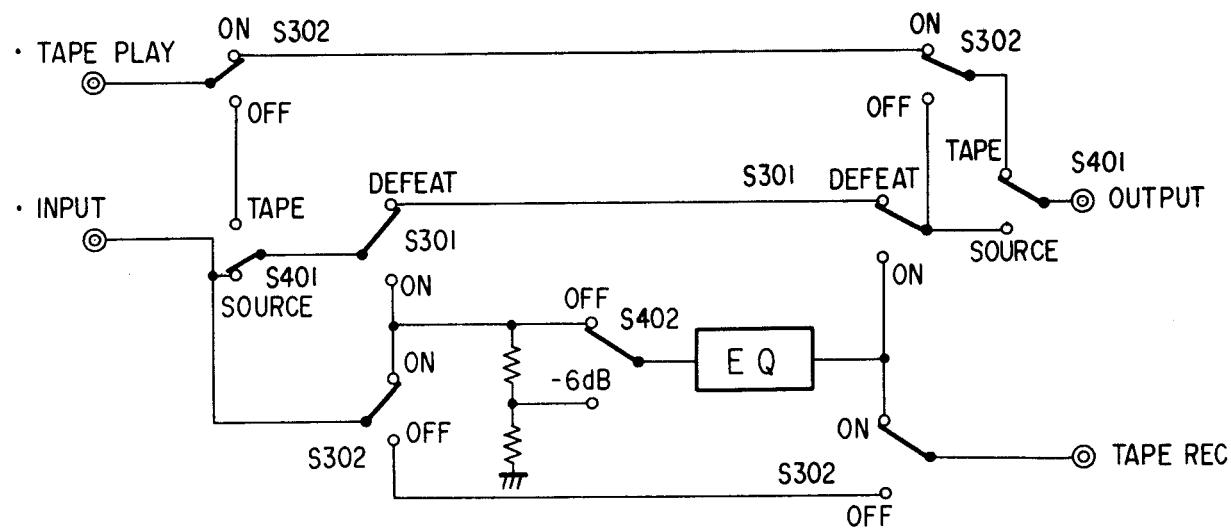
Symbol No.	Part No.	Description
<b>CABINET PARTS</b>		
301	20015259	Cover, Top
303	22884128	Knob, Slide Resistor
305	20017177	Front Panel Ass'y TE, TU, AY
305	20017186	Front Panel Ass'y, TU-T
306	22824350	Knob Ass'y, Power
307	22884013	Knob Ass'y, Push
308	20015254	Jack Plate, TE
308	20015256	Jack Plate, TU, AY
308	20015274	Jack Plate, TU-T
309	22705020	Plastic Rivet, Ø3 x 4.5mm
311	25845528	Nylon Bush, Cord Stopper
313	22828078	Leg
315	22701393	Screw, PAN Ø3 x 10mm, Tapping
316	22707452	Screw, BID Ø3 x 5mm
317	22707490	Screw, BID Ø3 x 6mm, Tapping
318	22701237	Screw, BID Ø3 x 6mm, Tapping, BLK
319	22707275	Screw, Special
320	22707456	Screw, FLDT Ø3 x 8mm, BLK
321	22707522	Screw, FLDT Ø3 x 6mm
322	22707066	Screw, FTBID Ø3 x 6mm, BLK
323	22701457	Screw, BID Ø3 x 6mm
327	22750084	Sheet, Himelon, Variable Resistor
328	22900143	Merit Label
<b>TRANSISTORS, ICS &amp; DIODES</b>		
Q301, 302, 303, 304, 305, 401, 402		I.C., TA75458S
Q306, 307, 308, 309, 310, 311, 312, 313, 314, 315		Transistor, 2SC1815-GR
Q903		Transistor, 2SC2235-Y
Q904		Transistor, 2SA965-Y
Q905		Transistor, 2SA1015-GR
D901		Diode, 1D2C1
D902		Diode, 1D2Z1
D903		Diode, (LED) TLR206

Symbol No.	Part No.	Description
D904, 905		Diode, Zener, 0Z15A
D906		Diode, 1S1555
<b>ELECTRICAL PARTS</b>		
S301	22195852	Switch, Push, EQ ON-OFF EQ REC:ON-OFF
S302		TAPE MONITOR: SOURCE, TAPE
S401		ATT 0 dB - 6 dB
S402		
S901	22195649	Switch, Push, Power
L901	22148647	Relay
T901	22223997	Power Transformer
J402, 404, 405, 407	22163831	Jack, US4P, INPUT & OUTPUT
J401, 403, 406, 408	22163831	Jack, US4P, REC & PLAY
EP01	22176286	Power Supply Cord, TE
EP02	22176588	Power Supply Cord, AY
EP03	22176628	Power Supply Cord, TU, TU-T
R905, 906	22500176	Fuse Resistor, 22 ohm 1/4 W
<b>CAPACITORS</b>		
D=±0.5pF, J=±5%, K=±10%, M=±20%, Z=−20+80%		
Work voltages of capacitor are DC50V unless otherwise noted.		
Abbreviations: CD = Ceramic, EL = Electrolytic, MY = Mylar, PP = Polypropylene,		
C301, 302	22488109	EL, 1mfd
C303	22488479	EL, 4.7mfd
C304	22488338	EL, 0.33mfd
C305	22488478	EL, 0.47mfd
C306	22488109	EL, 1mfd
C307	22371104	MY, 0.1mfd, J
C308	22488478	EL, 0.47mfd
C309	22371273	MY, 0.027mfd, J
C310	22371104	MY, 0.1mfd, J
C311	22371473	MY, 0.047mfd, J
C312	22371822	MY, 8200pF, J
C313	22371393	MY, 0.039mfd, J
C314, 315	22488109	EL, 1mfd
C316	22488479	EL, 4.7mfd
C317	22488338	EL, 0.33mfd
C318	22488478	EL, 0.47mfd
C319	22488109	EL, 1mfd
C320	22371104	MY, 0.1mfd, J
C321	22488478	EL, 0.47mfd
C322	22371273	MY, 0.027mfd, J

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
C323	22371104	MY, 0.1mfd, J	R321, 322	22555271	270 ohm
C324	22371473	MY, 0.047mfd, J	R323	22545471	470 ohm
C325	22371822	MY, 8200pF, J	R324	22555100	10 ohm
C326	22371393	MY, 0.039mfd, J	R325	22555101	100 ohm
C401	22488229	EL, 2.2mfd	R326	22555152	1.5K ohm
C402	22362101	CD, 100pF, K	R327	22545222	2.2K ohm
C403	22486101	EL, 100mfd, 25V	R328	22545680	68 ohm
C404	22362220	CD, 22pF, K	R329	22555471	470 ohm
C405	22488100	EL, 10mfd	R330, 331	22555271	270 ohm
C406	22488229	EL, 2.2mfd	R332	22555471	470 ohm
C407	22362470	CD, 47pF, K	R333	22555100	10 ohm
C408	22488479	EL, 4.7mfd	R334	22555101	100 ohm
C409	22488229	EL, 2.2mfd	R335	22555152	1.5K ohm
C410	22362101	CD, 100pF, K	R336	22545222	2.2K ohm
C411	22486101	EL, 100mfd, 25V	R337	22545680	68 ohm
C412	22362220	CD, 22pF, K	R338	22555471	470 ohm
C413	22488100	EL, 10mfd	R339	22555271	270 ohm
C414	22488229	EL, 2.2mfd	R340	22555271	270 ohm
C415	22362470	CD, 47pF, K	R341	22555471	470 ohm
C416	22488479	EL, 4.7mfd	R342	22555100	10 ohm
C417, 418	22362470	CD, 47pF, K	R343	22555101	100 ohm
C901	22371223	MY, 0.022mfd, J	R344	22555152	1.5K ohm
C902, 903	22371103	MY, 0.01mfd, J	R345	22545222	2.2K ohm
C904, 905	22371103	MY, 0.01mfd, J	R346, 347	22545101	100 ohm
C906, 907	22487471	EL, 470mfd, 35V	R348	22545680	68 ohm
C908, 909	22488470	EL, 47mfd	R349	22555271	270 ohm
C910, 911	22487101	EL, 100mfd, 35V	R350, 351	22555471	470 ohm
C912, 913	22371332	MY, 0.0033mfd, J	R352	22555271	270 ohm
C914, 915	22371223	MY, 0.022mfd, J	R353	22555100	10 ohm
C916	22486101	EL, 100mfd, 25V	R354	22555101	100 ohm
<b>RESISTORS</b>					
Resistors are fixed carbon film 1/4W, $\pm 5\%$ unless otherwise noted.					
R301	22545680	68 ohm	R355	22555152	1.5K ohm
R302	22555471	470 ohm	R356	22545222	2.2K ohm
R303, 304	22555271	270 ohm	R357	22545680	68 ohm
R305	22555471	470 ohm	R358	22555271	270 ohm
R306	22545100	10 ohm	R359, 360	22555471	470 ohm
R307	22555101	100 ohm	R361	22555271	270 ohm
R308	22555152	1.5K ohm	R362	22555100	10 ohm
R309	22563222	2.2K ohm, 1/2W, Composition	R363	22555101	100 ohm
R310	22545680	68 ohm	R364	22555152	1.5K ohm
R311	22555471	470 ohm	R365	22545222	2.2K ohm
R312, 313	22555271	270 ohm	R366	22545680	68 ohm
R314	22555471	470 ohm	R367	22555271	270 ohm
R315	22555100	10 ohm	R368, 369	22555471	470 ohm
R316	22555101	100 ohm	R370	22555271	270 ohm
R317	22555152	1.5K ohm	R371	22555100	10 ohm
R318	22563222	2.2K ohm, 1/2W, Composition	R372	22555101	100 ohm
R319	22545680	68 ohm	R372	22555101	100 ohm
R320	22555471	470 ohm	R373	22555152	1.5K ohm
			R374	22545222	2.2K ohm
			R375	22545680	68 ohm
			R376	22555271	270 ohm
			R377, 378	22555471	470 ohm
			R379	22555271	270 ohm

Symbol No.	Part No.	Description
R380	22555100	10 ohm
R381	22555101	100 ohm
R382	22555152	1.5K ohm
R383	22545222	2.2K ohm
R384	22545680	68 ohm
R385	22555271	270 ohm
R386, 387	22555471	470 ohm
R388	22555271	270 ohm
R389	22555100	10 ohm
R390	22555101	100 ohm
R391	22555152	1.5K ohm
R392	22545222	2.2K ohm
R393, 394	22545223	22K ohm
R395, 396	22545223	22K ohm
R401	22545154	150K ohm
R402, 403	22545473	47K ohm
R404	22555332	3.3K ohm
R405	22555105	1M ohm
R406	22545474	470K ohm
R407, 408	22555822	8.2K ohm
R409	22555474	470K ohm
R410	22555102	1K ohm
R411	22555471	470 ohm
R412	22555563	56K ohm
R414, 415	22545473	47K ohm
R416	22555332	3.3K ohm
R417	22555105	1M ohm
R418	22545474	470K ohm
R419, 420	22555822	8.2K ohm
R421	22555474	470K ohm
R422	22555102	1K ohm
R423	22555471	470 ohm
R424	22555563	56K ohm
R425	22545154	150K ohm
R901	22555182	1.8K ohm
R902	22555224	220K ohm
VR01 to 10	22657223	Variable, 200K ohm
R903, 904	22555102	1K ohm
<b>ACCESSORIES</b>		
AC01	22164775	Joint Cord
AC02	22903050	Owner's Manual, TU, AY, TU-T
AC03	22903048	Owner's Manual, TE
AC04	22884129	Knob, Joint

## 8. BLOCK DIAGRAM



S301: EQ : ON/DEFEAT

S302: EQ REC : ON/OFF

S401: TAPE MONI: TAPE/SOURCE

S402: ATT : -6dB/OFF

Figure 9.